

SAN FRANCISCO BAY



NATIONAL WILDLIFE REFUGE

Annual Narrative 1992
Public Use Sections

ANNUAL NARRATIVE PUBLIC USE SECTIONS

E.2. Youth Programs	2
E.4. Volunteer Programs	2
H.1. General Public Use	8
H.2. Field Trips (Outdoor Classrooms) - Students	8
H.3. Field Trips (Outdoor Classrooms) - Teachers	15
H.4. Interpretive Trails	24
H.5. Interpretive Routes (Nothing to Report)	25
H.6. Interpretive Exhibits and Demonstrations	25
H.7. Other Interpretive Programs	32
H.9. Fishing	35
H.10. Trapping (Nothing to Report)	36
H.11. Wildlife Observation	36
H.12. Other Wildlife Oriented Recreation (Nothing to Report)	36
H.13. Camping (Nothing to Report)	36
H.14. Picnicking (Nothing to Report)	37
H.15. Off-Road Vehicles (Nothing to Report)	37
H.16. Other Non-Wildlife Oriented Recreation	37
H.18. Cooperating Associations	37
Public Use Staff Photo	42

1992 ANNUAL NARRATIVE PUBLIC USE SECTIONS

E.2. Youth Programs, Boy Scouts and Girl Scouts

During 1992, the Refuge had 4 employees involved with the Boy Scouts of America. A total of 850 hours, consisting of 250 hours of duty time and 600 hours of volunteer time, were logged. We cooperated and worked with the local girl scout council again this year. A total of 100 staff hours and 75 volunteer hours were logged, mostly in the late summer.

The Refuge's Conservation - Natural Resource Explorer Post held its fourth successful Open House in October 1992. Approximately 50 youths and parents attended resulting in 15 youths registering. Some changes were made in the program this year. All participants took part in a 10-hour modified Refuge Volunteer Training and officially became part of the Refuge Volunteer Staff. The Explorers were required to volunteer 8 hours a month at the Refuge in addition to their biweekly meetings and field trips. To fulfill this requirement, they did several group projects (maintenance, painting, and nursery work) and individually they did trail patrol, fishing pier patrol, Visitor Center desk duty, office work and helped with special event days. This new approach seemed to work well. It enabled the Explorers to be more involved in the Refuge and the Refuge benefited from their help on projects.

Staff and volunteers continued to meet, upon request, with girl and boy scout troops during after school and weekend visits to the Refuge. Usually the troops were fulfilling requirements for badges and the staff or volunteers presented programs based on what the troop leader requested.

E4. Volunteer Program

Once again, volunteers were vital to the continued success of many of the Refuge's programs. In the public use department, volunteers staffed the Visitor Center 95% of the time, patrolled the Refuge trails and fishing piers, presented 99% of the weekend interpretive programs, including walks, slide shows and tours. Volunteers provided staff with administrative help in the office and also assisted with the many maintenance projects around the Refuge. Many resource management projects, like habitat restoration and surveys utilized volunteers.

Volunteers were vital to the success of many Refuge events including the Native Plant Sale, Kids' Day, Earth Day and National Wildlife Week, Halloween Open House, Coast Clean-up and the Avocet Festival (our arts and crafts fair).

Some of our youngest volunteers shared their knowledge with their peers during this past summer's Junior Naturalist program. These volunteers, previous graduates of

the Junior Naturalist program, assisted staff in teaching 3rd through 6th graders about the salt marsh and the importance of preserving the environment.

Refuge volunteers assisted in various projects at other NWRs. Through the cooperating association, Jean Noll continues to do the bookkeeping not only for San Francisco Bay NWR, but also for Klamath and Sacramento NWR. Two volunteers and two Student Conservation Association interns spent 6 days at the Salton Sea NWR assisting with the eared grebe die-off. While this was no easy task, they all enjoyed the experience and are eager for invitations to other Refuges! Two other SCA interns assisted Humboldt Bay NWR at an environmental education conference in Humboldt County. Teachers and their classes learned about conservation and the environment through activities put on by the interns.

Thirty-six volunteers and employees volunteered at the local public television station answering phones to help raise money for public funded programming like nature and wildlife shows.

Habitat restoration continued at Antioch Dunes NWR with Pacific Gas and Electric Company donating sand, personnel and equipment to recreate dune habitat. After the new dunes were sculpted, volunteers from the Refuge, PG & E and California Conservation Corps contributed over 250 hours to transplant over 3,000 seedlings including the host plant for the endangered Lange's Metalmark butterfly and the endangered plants the Refuge was established to protect. Recent surveys already show butterflies in the new dunes area.

Over 300 people contributed over 900 hours during the annual Coast Clean Up. The California Conservation Corps contributed 560 hours of grounds maintenance at the Environmental Education Center. A local group continues to rehabilitate an old hunters cabin, already contributing over 300 hours. People referred by the courts to perform community service contributed over 580 hours to the Refuge. They assisted with administrative tasks, maintenance and even built bookshelves for the Visitor Center. Volunteers at the Farallon NWR contibuted over 9,170 hours assisting biologists with various studies.

Total hours contributed by 598 volunteers during the year was 29,305, amounting to a savings to the government of \$21,894. This included Refuge volunteers, non-Refuge volunteers and Student Conservation Association (SCA) interns. Refuge volunteers are required to go through a 20 hour orientation and training sessions and commit 16 hours a month (this is flexible). We conducted three 20-hour training sessions for new volunteers in 1992. A total of 35 volunteers completed the training and became official Refuge volunteers. Currently, there are 110 Refuge volunteers on staff. Non-Refuge volunteers include scout and church groups and other one-time volunteers.

A vital part of the refuge's personnel are the Student Conservation Association (SCA) interns. These interns are recruited nation-wide though the SCA (one intern was from England). This past year there were 10 SCA interns who contributed 40 hours a week for at least 16 weeks. Many interns were asked to stay longer due to their commitment and aquired expertise in their various projects. One intern stayed for 7

months. In exchange for their full time volunteer services, the Refuge provided them with housing and a small subsistence of \$50.00 per week.

Four of the SCA interns, Mike Rehberg, Stephanie Zador, Kathryn Clark and Eric Kelchin, worked with the Wildlife Biologists, assisting with a study on the endangered California clapper rail. This study, involved long hours, usually late in the evenings, doing population and predator surveys, as well as collecting telemetry data.

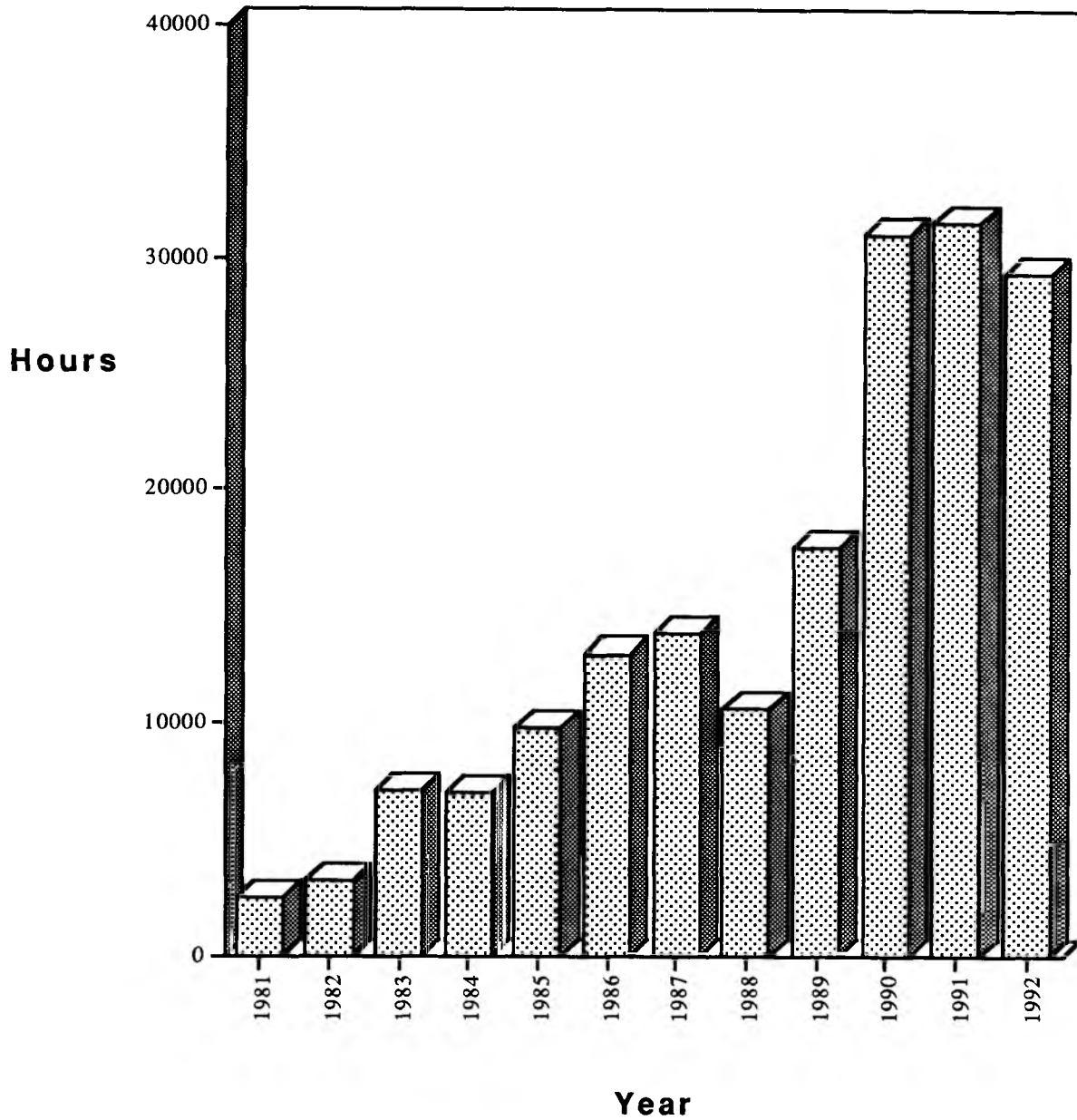
Five other interns, Joseph Hunter, Clare Brewster, Alison Talbot, Amy Hutzel and Victoria Mills, were just as vital to the environmental education program. Over 13,000 students, their teachers and parents went through the field trip program. SCA interns were essential in assisting with teacher orientations, field trips, classroom presentations, Marsh-In Camp and the Junior Naturalists program. (See also Sections H2 and H3.) Interns developed teaching videos for leaders and activities for on and off-site environmental education.

In June, Refuge volunteers were recognized for their efforts at the annual Volunteer Picnic and Recognition Ceremony. All volunteers received a Certificate of Appreciation provided by the Regional Office. In addition, volunteers who had accumulative hours in increments of 500 and 1000 hours were recognized with special pins. Additional recognition was given to three volunteers who have contributed over 3,000 hours each. Jack Runyan, Arthur Wellens and Ken Crowley, each received plaques and a letter of appreciation from the Regional Director.

The highlight of the Volunteer Awards Ceremony was the recognition of volunteers who had the top ten number of hours for the past year. These volunteers received a Fish and Wildlife Service plaque and a certificate signed by the Secretary of Interior for their tremendous contribution in time and effort to the Refuge. They were Ida Berkowitz, Howard Collins, Ken Crowley, Jack Runyan, Alvin Dockter, Helen & Stanley Kalick, Arthur Wellens, Stan Brown and Lee Lovelady. Volunteer of the Year honors went to Jean Noll for the second year in a row, she contributed over 500 hours to the Refuge.

One advantage of the location of an urban wildlife refuge is that there is a large population base located nearby that serves as a vast reservoir of potential volunteer candidates. We recruit new people through displays at various off-site fairs, word of mouth advertising, and articles in the quarterly Tideline newsletter. An application which describes the volunteer program is available in the Visitor Center.

Volunteer Hours
San Francisco Bay
National Wildlife Refuge
Complex



Farallon NWR hours not included, 1981-1989



Volunteer of the Year Jean Noll sold books at the Native Plant Sale.



Volunteers Joe Hunter, Margaret Lewis, Clare Brewster and Betty Foster helped Salton Sea NWR biologist Jeff Durbin (second from right) clean up dead grebes and Salton Sea in March.



Volunteers and employees labeled Tideline newsletter during one of our quarterly mailing parties. Environmental Education Specialist Sandy Spakoff (absent from staff photo) is at left.



Volunteers filled their plates at our annual Thanksgiving luncheon feast in November.

H. PUBLIC USE

H1. General Public Use

San Francisco Bay National Wildlife Refuge serves a dense, local population of more than 7 million people. It is an ideal place for Bay area urbanites to visit a relatively unspoiled area, enjoy the local wildlife and learn about nature, conservation and wildlife management. During 1992, 300,000 people visited to Refuge. Of these, 7,587 students, 407 teachers and 1633 other adult leaders attended Environmental Education Program activities at the Environmental Education Center in Alviso and the Visitor Center in Fremont. Forty eight thousand people stopped in at the Visitor Center and 7,709 attended interpretive programs, special events, artist receptions and other events held at the Visitor Center. Many more visitors received our self guided interpretive messages when they read our wayside exhibits.

Two thirds of our 1992 visitors participated in recreational activities other than formal programs at one of the centers. The public fishing area, trails and sloughs were all heavily used by visitors, many of whom were contacted in the field by Refuge volunteers on patrol.

General public use increased during 1992 at the Environmental Education Center (EEC). The EEC opened to the public on Saturdays and Sundays beginning in September, with good turn outs by the public for trails and nature walks. The number of drop-in visitors at the EEC that were counted totaled 3768. The Visitor Center in Fremont was closed on Mondays as the result of a directive from the Washington Office. In addition, it was closed all Federal holidays due to limited funding for staff. The trails and fishing piers remained open during all daylight hours everyday except New Year's Day, Thanksgiving and Christmas.

H.2. Field Trips (Outdoor Classrooms) - Students

Once again, San Francisco Bay National Wildlife Refuge supported an exciting field trip program. The Environmental Education Program (EEP) was conducted at both the Environmental Education Center (EEC) in Alviso and the Visitor Center (VC) in Fremont by Environmental Education Specialists (EES) who had previous volunteer experience. As in previous years, the environmental education specialists encouraged educators and outdoor recreation leaders to participate in the Refuge's educator-led field trip program which makes use of a learning station rotation format; this format allows for students and adults to spend an entire school day learning about the importance of preserving and protecting the natural resources of the South Bay. A requirement for participation in this program is that educators and volunteer leaders (most often students' parents) attend a field trip orientation workshop prior to the field trip.

Field trips involve students in indoor and outdoor activities revolving around a central theme chosen by the teacher. Videos, films, and slide shows provide audio visual opportunities. A ratio of 10 students to 2 adults is strongly encouraged to provide an enhanced learning experience for the students while at the Refuge. One adult is the

group of 10 students to each learning station.

With only one EES at each site, the high quality of the field trip program and the number of students served would not be possible without the help of Student Conservation Association (SCA) interns and a few dedicated volunteers. The volunteers and SCA interns learn the basics of the environmental education program and then either lead particular activities, present opening and closing programs and/or provide support to teachers/parent leaders conducting activities at the learning stations. When not busy with visiting school groups, the interns and some volunteers help the staff with special projects which enhance the educational experience for visitors and students. When possible, we scheduled more than one class per day. These double bookings allow us to accomodate more students.

During 1992 we devoted the first three weeks of January and September to curriculum development, and to equipment and educational props inventory and replacement. Demand for school group use during this time is limited. Fall reservations began on September 1 and spring reservations began on December 1. Holding off on new reservations until just prior to each field trip season, we had minimal field trip cancelations.

In 1992, the long overdue reorganization and up-date of office files, inventory and replacement of field trip equipment and upgrade of teaching materials was launched. To allow sufficient time to conduct the reorganization, both sites offered field trips only three days a week --Tuesday, Wednesday and Thursday -- and minimal double-booked field trips. This is reflected in the lower number of students attending field trips for 1992 in comparison to the 1991 figures (from 13,328 to 9,627).

Environmental Education Center Field Trips -- The Environmental Education Center (EEC) was used extensively by many schools and groups located in and around the San Francisco Bay Area. In 1992, most of the groups using the EEC for a field trip participated in the Refuge's E.E. program with learning station rotations: 3,870 students, 143 educators and 653 volunteer leaders visited the site on this type of educator-led field trip.

The EEC was also used by various student groups not participating in the learning station rotation formatted field trip program. 320 students, 121 educators and 196 volunteer leaders made use of the site for other educational activities such as walking tours, summer day camp, scout meetings, and scientific study (high school - college level). The combined totals for usage by all of the school/outdoor education groups for 1992 at the Environmental Education Center are as follows: 4,190 students, 264 educators, 849 volunteer leaders.

For the sixth consecutive year, there was a greater demand for the learning station rotation formatted field trip program than the staff was able to meet. With the exception of groups such as Santa Clara Audubon and Environmental Volunteers who use the site with no staff support, no double bookings were accepted. Over forty separate groups (14 to 120 students per group) were placed on a waiting list and only three of those groups were given dates for field trips; an estimated 2,300 students were turned away. Although it is evident that there is a greater demand for

the program than is currently being met, the calendar at the EEC cannot accommodate additional field trips without additional staff members.

Throughout the year the staff at the EEC strove to strengthen its relationships with persons at George Mayne Elementary School and in the Alviso Community. One of the means used to accomplish this goal was the hosting of Family Science Day for George Mayne Elementary School. This was a cooperative effort in which Refuge EE specialists, interns and volunteers worked with teachers, parents and youth from the Alviso school and community organization. Because of the large Hispanic population, the environmentally oriented activities were conducted in both English and Spanish. The marsh walks, flannel banner presentations, brine shrimp and owl pellet laboratories were enjoyed by all. Numerous families from the Alviso community attended the program; an estimate of 65 persons came to the EEC specifically for this event. It is hoped that community involvement in these types of events will result in greater support for the Refuge and its programs.

Visitor Center Field Trips -- The teacher-led field trip program at the Visitor Center completed its fifth year at the end of 1992. Through our Field Trip Orientation Workshops, 107 teachers and 76 adult leaders received training to assist them in their field trip preparation. A grand total of 3,397 students and 143 teachers and 784 volunteer leaders participated in all day field trips.

Once again this year, there was a greater demand for the learning station rotation field trip program than the staff was able to meet. Fourteen separate groups (14 to 90 students per group) were placed on a waiting list and only one of those groups was given a date for a field trip; an estimated 450 students were turned away. Although it is evident that there is a greater demand for the program than is currently being met, the calendar at the VC could not accommodate additional field trips because of the EEP reorganization efforts being conducted in 1992.

Teachers design their field trip and may choose from the pumphouse, picnic shelter, pavilion, amphitheater, Visitor Center, eucalyptus grove, and the various designated trails as learning station sites for their activities. Staff members conduct opening and closing activities in the Visitor Center auditorium, the pavilion, or the amphitheater, depending on the selected activities. Both the pumphouse and pavilion serve as hubs for the daily field trip program. The pumphouse is also used by California State University, Hayward, field biology and ecology classes to conduct studies on the salt marsh.

During 1992, the Refuge purchased a television monitor and fiberoptic illuminator for a video microscope system housed in the pumphouse. The maintenance staff permanently mounted the monitor to the wall above the video microscope; this location allows everyone in the pumphouse to view the creatures displayed on the monitor. The user-friendly video microscope captivates students and leaders as they observe the creatures found in their mud samples.



During their field trip, students discover what the owl ate for dinner as they dissect their owl pellets.

Summer Day Camps -- Day camps for local youngsters were conducted during the summer at both the Environmental Education Center and at the Visitor Center. "Marsh-In" Camp at the EEC was initially designed to build rapport with the children living in the local community. Keeping with this philosophy, the eleventh annual "Marsh-In" summer day camp was held for one session in July. This was the sixth year of the five (5) day program with an overnight session; again it was a huge success. The theme for 1992 was 'Wet and Wild' which focused on the interrelationships and importance of water habitats on and connected to the Refuge. The camp sessions were taught by two volunteer naturalists from the Environmental Volunteers, four Refuge Volunteers (two of which were junior leaders), and two SCA Interns. The Environmental Education Specialist designed and supervised the camp, directed the acquisition of materials and props, and conducted training sessions for the volunteers.

The camp was attended by seventeen children entering the fourth, fifth, or sixth grade in the Fall of 1992. Alviso residents were given the opportunity to register for the program before registration was open to residents of other communities. As in previous years, children from Alviso made up the majority of "Marsh-In" participants.

As a result of the summer camp program the children living in Alviso have an increased awareness of the many factors that impact the habitats of the Refuge. Additionally, young persons that participated in the camp have developed a sense of stewardship for the EEC; children have returned to pick up litter, water plants, etc.



Marsh-In Campers making tule mats to use during their evening camp fire program

July 1992 went down in history as the summer of the singing and traveling Junior Naturalists. The Refuge offered the Junior Naturalist summer day camp at the Visitor Center free of charge to third, fourth, fifth, and sixth graders. Twenty-one third and fourth graders attended camp from July 20 through July 24 and twenty-three fifth and sixth graders attended camp from July 27 through July 31. A total of nine volunteer leaders enthusiastically and courageously led the campers through a week full of exciting activities. The overall theme of the 1992 Junior Naturalist camp was "Habitat Exploration." Each day of camp introduced the Junior Naturalists to a different habitat and its characteristics. The daily themes were as follows: Monday - "Down 'n' Dirty" (Salt Pond, Salt Marsh, and Slough Habitats), Tuesday - "Thrills and Chills of Coyote Hills" (Freshwater Marsh and Upland Habitats), Wednesday - "Do the Tidepool Boogie" (Ocean and Tidepool Habitats), Thursday - "Sights of Night" (Habitats at Night), and Friday - "Habitat Hoedown" (review of the week).

Camp was held at the following times: 10:00 am to 2:00 pm on Monday, Tuesday and Friday; 8:00 am to 2:00 pm on Wednesday; and 7:00 pm to 10:00 pm on Thursday. The Thursday session was the first time that the Junior Naturalist Program had been held at night. Our habitat studies took us to Coyote Hills, Fitzgerald Marine Preserve, and Huddart County Park. Both weeks resulted in fun, learning experiences for everyone involved.



The 3rd and 4th grade Junior Naturalists take time out for a group photo.



"Thrills and Chills of Coyote Hills" - Junior Naturalists explore the freshwater marshes of Coyote Hills.



The mudflat habitat group relaxes in their special spot as they write in their journals.



SCA intern Alison Talbott emcees the "Habitat Hoedown"

H.3. Environmental Education -- Teachers

Field Trips -- In the San Francisco Bay Area, where many environmental education facilities and programs are available for teachers to choose from, the Refuge Environmental Education program is unique from all others. By having teachers fully responsible and highly involved in their field trip, they are more likely to integrate the classroom curriculum with their field trip activities. As a result, students achieve a more meaningful, in-depth experience.

We provide a facility where teachers can lead their own field trips following the training and guidance we provide. Teachers plan their field trip, prepare their students and adult leaders and conduct the field trip following the individual format designed by them.

This format provides both the teachers and students with a learning environment which often extends into the classroom beyond the day spent on the Refuge. The EEP staff, SCA's and volunteers offer training and support both before and during the field trip. Teachers and many parents attend a field trip orientation workshop. Then, teachers design their field trips and assign parents to conduct specific activities at learning stations and recruit other parents to act as chaperones. The EEP can teach students more effectively because of individual attention gained through this "multiplier effect". A high adult/student ratio (2 adults to every 10 students) is important to enhance the learning experience. One adult is a small group chaperone, moving with their group to each learning station. The other adult teaches specific activities at a learning station, repeating their activities for each group during the field trip day.

Before a field trip to the Refuge can be scheduled, at least one adult must attend a 4-hour field trip orientation workshop. The staff is available for individual planning sessions should teachers require assistance in planning their trips. A total of 14 field trip orientation workshops were offered at the Environmental Education Center in Alviso with 239 individuals participating plus 44 teachers/leaders who returned for one hour planning sessions. 8 field trip orientation workshops were held at the Visitor Center in Fremont with 183 teacher/leaders being trained. Five teachers returned for one hour planning sessions. The confidence gained by teachers and adult leaders at these orientation workshops culminates in a successful field trip.

The refuge Environmental Education Program staff continues to distribute the Salt Marsh Manual -an Educator's Guide! The 220 page guide was designed to facilitate discovery, learning and enjoyment of field trips to the San Francisco Bay National Wildlife Refuge. It contains background information, area maps, planning and group management hints, classroom and on site activities, and additional resource information. The activities in the guide are for grades K-8. The Educator's Guide is available free of charge to all teachers and group leaders who attend a Field Trip Orientation Workshop. Those not attending the orientation can obtain a copy for \$10.00. The third, revised edition was available in January of 1992. The major revisions included new chapters on bird migration, endangered species, and tides. In addition, the guide was correlated to the California Science Framework and other environmental education guides. The 1992 edition included artfully designed tabs for each chapter.

Teacher In-Service; Alum Rock School District, Social Studies -- New Chicago Marsh at the Environmental Education Center has often been used for thematic teaching. In recent years, the EEC has been used by groups to study the historic lifestyle of the Ohlone Indians and how it related to the ecology of the area. In the winter of 1992, the Center was chosen to host a teacher in-service in Social Studies; fourth grade teachers from Alum Rock School District in San Jose held their program on January 31st. Forty teachers and several district personnel spent the day learning about the wetland habitats of the Refuge and discussing the social studies curriculum which centers around California Indians.

George Mayne Elementary School; Specialized Field Trip Orientation Workshop -- George Mayne Elementary School is located in Alviso, approximately two miles from the Environmental Education Center. The school educates children from the local community in grades kindergarten through fifth. Through the efforts of the staff at the EEC, many classes began participating in the educator-led field trip program in the mid 1980's and by 1989 nearly all of the students at George Mayne were involved. Although teachers had the option to select from an array of activities, the same activities were being done by teachers at each grade level. Therefore, students would repeat activities year after year and by the end of the 1990-91 school year teachers were becoming disenchanted with the program. This sentiment was brought to the attention of the Environmental Education Specialist in October of 1991 at a meeting with the new Science Coordinator for the school. At that time it was decided that the E.E. Specialist would propose a revised outline to the teachers that could be modified and then implemented in June 1992.

In order to generate new interest in the environmental education program at the Refuge, the E.E. Specialist developed a customized field trip program based on the curriculum of each grade level. This entailed selecting new activities, adapting existing activities, meeting with teachers and the science coordinator, and conducting specialized field trip orientation workshops for teachers, teachers' aids, and parent volunteers at each grade level. The revised, school-wide program was adopted by the teachers who brought their students to the EEC the first two weeks of June. This endeavor resulted in renewed enthusiasm for the field trip program and a strong working relationship with the faculty of George Mayne School.

Environmental Education Methods Training Workshop for U.S. Fish & Wildlife Service -- 1992 monies were appropriated by Congress for the enhancement of environmental education in five field stations of the U.S. Fish & Wildlife Service. SFBNWR was one of the selected stations. Our Regional Director mandated that the EEP staff design and conduct an Environmental Education Methods Training Workshop for Region 1 personnel. The purpose of the workshop was to provide service personnel with the skills to be effective in using environmental education with formal (schools) and nonformal groups (scouts, campfire and others) as a way to address resource management issues. The EEP coordinator invited the Office of Training and Education (OTE) to co-sponsor the workshop with Region 1 and the refuge. Environmental education specialists from OTE, Regions 6 and 7, Federal Aid - Region 1 and the environmental education specialists from SFBNWR designed and

conducted this workshop. Because the response to the workshop from Region 1 was low, the workshop was opened to other personnel in all regions of the Service. (all regions attended except Region 7). The reason for the low response from Region 1 personnel was previous attendance at a 1991 workshop in Cispus, Washington presented by the U.S. Forest Service.

The Workshop was conducted on July 21-25, 1992 at the Environmental Education Center in Alviso. Thirty-one Service personnel attended the five day workshop. The refuge EES designed and conducted the sessions for the on-site program of the workshop.

A participant from Region 4 -- and a recipient of the same appropriated congressional environmental education funds -- was so impressed with the workshop that he asked the workshop facilitators to help plan and conduct the same workshop in Sept ,1992 for Region 4. On September 21 - 25 another Workshop was conducted at Okefenokee National Wildlife Refuge in Georgia. The Environmental Education Program coordinator and an environmental education specialist from this refuge, along with OTE and Region 6 personnel facilitated this week long workshop. The evaluations for both Environmental Education Methods Training Workshops were excellent.



Class picture of the facilitators and the participants during the Environmental Education Methods Training Workshop.

Environmental Education Workshops for Bay Area Educators -- The EEC staff was actively involved throughout 1992 with Project WILD, Aquatic WILD and Project Learning Tree environmental education programs which offer their curriculum guides only through workshop attendance. Project WILD, offered in the spring, is an interdisciplinary wildlife education program that provides wildlife related instructional activities for grades K-12. The overall purpose is to conserve wildlife and natural resources. The Aquatic guide focuses on aquatic-related habitats and is a resource for teachers to use when teaching about the San Francisco Bay ecosystem. Project Learning Tree, offered in the fall, focuses on preservation of forest habitats. These workshops were co-sponsored with Coyote Point Museum, an environmental education center in San Mateo County and with the Tarlton Foundation in San Francisco, a non-profit organization with the Under Water World Project. Another Project WILD/Aquatic WILD workshop was conducted in the fall for the California Science Teachers Association Conference held in San Jose. Twenty teachers attended this WILD workshop. Workshops were conducted by Michael Caduto, author of *Keepers of the Earth* and *Keepers of the Animals*. Due to his popularity, a second workshop was offered; 70 educators attended both workshops.

We offered two workshops on the teaching of Central California Indian technology in the spring and fall. The 73 educators who attended the workshops incorporated the activities into their social studies curriculum on California Indians. A total of 202 educators and environmental education resource agency staff members attended these 7 workshops. All of these workshops met the refuge resource management objectives of habitat preservation and endangered species protection.

Educational Resources ; Audio Visual Lending Library -- The Audio Visual Lending Library for the Environmental Education Program expanded in 1992 with both sites lending out audio visual materials. Many more copies of the 13 minute VHS video tape named *Who Did the Owl Eat?* and accompanying charts, curriculum, and script are now available for check out by teachers and group leaders. This tape depicts a barn owl's hunting and eating habits, regurgitation of an owl pellet and directions on how to dissect a pellet. This video is appropriate for grades first through sixth. Teachers are encouraged to copy the tape and many of the charts to have in their school curriculum library for future use. Other refuges have copied the tape to lend out to teachers.

The 25-minute video about S F. Bay and the Delta called *Secrets of the Bay* shows the history of the bay and its sometimes conflicting interests. This video is appropriate for grades fourth through college.

Fabulous Wetlands is an 8-minute video that takes a humorous, yet informative look at wetlands -- what they are, how important they are, and what we can do to protect them. This is perfect for pre-field trip preparation. This video is appropriate for grades third through high school.

A Home for Pearl and accompanying guide is a video that teaches about wildlife habitats. It is divided into four parts: two 15-minute segments and two 20-minute

segments. Each can be viewed as a separate unit incorporating supplementary activities provided in the guide. Appropriate for grades first through sixth.

In addition to the professional videos in the Audio Visual Lending Library, several training videos were shot by an SCA intern and made available in 1992. Brine Shrimp Lab at the Environmental Education Center , Brine Shrimp Lab at the Visitor Center and Mud Creature Study at the Visitor Center were all created and distributed. These videos are designed for educators to use while preparing activity leaders for a field trip. The training videos consist of background and "how to" information and footage of the activity during an actual field trip.

Environmental Education Organizations, Consortiums and Committees -- The members of The Outreach and Education Training Task Group had participated in the National Park Service's Harper's Ferry Education Course in January, 1991 with the thought in mind that a common experience could facilitate the process of developing a course tailored to meet the needs of the Service. In the fall of 1991, the Service had held a workshop called Setting Environmental Education Directions to clarify the needs of education and outreach for the Service. With the information gathered at both these events, the next step was to draft a proposal for instituting a framework for training in education and outreach. The task group met in February of 1992 to draft the proposal. To date no action has been taken concerning the proposal. Fran McTamaney, the Refuge's Environmental Education Program Coordinator participated on Task Group.

At the conclusion of Region One's April 1992 conference, "From Vision to Action," a Regional Outreach Strategy Team was assembled to respond to the numerous concerns regarding public information, public involvement, public image, and visitor services needs of the Fish and Wildlife Service. A regional outreach strategy was formulated by a cross-program team of field and Regional Office employees. The EEP Coordinator served on this team, and contributed expertise on Service-related environmental education.

The team worked throughout 1992 defining "publics" (audiences to which the outreach effort would be directed) and drafting a proposal on meeting the needs of the publics. The publics selected were evaluated as potential region-wide outreach targets based on the following criteria: (1) their importance to the future accomplishment of the agency's mission, (2) relevance across Fish and Wildlife Service programs, (3) the ability of different programs to design and implement outreach efforts targeted at the public (4) whether relationships could be improved by refocusing current resources, and (5) the relative benefits associated with improving service and communication with these publics. The effort resulted in identification of 7 priority outreach publics - Region 1 employees; visitors to Region 1 facilities and offices; print and electronic media; educators and youth professionals; natural resource organizations, including industry, environmental organizations, and natural resource agencies; national , state and local elected officials; international visitors and tourists.

On December 8, 1992 representatives of the outreach strategy team briefed the

Regional Directorate on its findings and recommendations. To implement the strategy, the Directorate committed to the full implementation of the long-term approach to outreach developed by the team. During 1993, The refuge EEP Coordinator will be a consultant to the Outreach Strategy team in regards to environmental education direction and training.

The California Aquatic Science Education Consortium is a consortium of agencies, organizations and citizen groups established to encourage, support and enhance aquatic (fresh and marine) education programs for informal groups in California. To accomplish its objectives, the Consortium is supervised by a Board of Directors; SFBNWR was represented on the board in 1992. The first project that is being funded is the development of five aquatic curriculum units. Plastics in the Ocean, Physical Characteristics of Water and Water Pollution are completed. The units on Wetlands and Stream and Riparian Habitats. are in draft form. During 1992, the refuge Environmental Education Program Coordinator was on the committee to design and lead the Trainer of Trainers Workshop that was scheduled for January, 1993. The workshop is designed to train volunteers on how to train other volunteers in conducting the activities from the aquatic curriculum units.(See the addendum at the back of this narrative for the brochure of this organization)

The Recycling Partnership for Schools and Businesses was a project of the Mid-Peninsula Environmental Education Alliance (MEEA) and the Santa Clara County Manufacturing Group (SCCMG) Environmental Committee. MEEA was a group of non-profit organizations working together to bring different aspects of environmental education to our communities. Due to lack of interest and time MEEA will be inactive in 1993. The San Francisco Bay National Wildlife Refuge was a member of MEEA. The EEP Coordinator was a member of the advisory committee for this project. SCCMG was interested in developing a community-wide environmental education project, and approached MEEA for ideas. Brainstorming among representatives from MEEA affiliates and members of SCCMG resulted in a project which combined the resources of businesses with the future of our community -- kids. This program employed recycling as a catalyst for building school-business partnerships based on the Adopt-a-School concept.

Initially, the program targeted middle-schools. The goal was to help each school and its business partner incorporate the 3R's of recycling -- reduce, reuse, recycle -- into its daily operations. As part of the program, a guidebook was developed, based on what the program should accomplish -- including allowing enough flexibility for each partnership to individualize its program in response to its particular situation. During 1992, 17 schools and businesses formed partnerships. In future years individual businesses and schools aided by the comprehensive guidebook will be able to set up and manage their own recycling partnerships.

The Recycling Partnership for Schools and Businesses Program, won the First Place Award in the "Community/Non-profit" category in the 1992 Recycling Achievement Awards competition. The award is presented each year by the California Director of Conservation recognizing outstanding contributions to recycling beverage containers. (See the addendum at the back of this narrative for the order form on The Recycling Partnership For Schools & Businesses How-to Guidebook)

Because of the growing concern for the health of San Francisco Bay and the Sacramento/San Joaquin Delta Estuary, the U.S. Environmental Protection Agency established the San Francisco Estuary Project, a cooperative local, state and federal program. The San Francisco Bay Estuary Project is charged with developing and promoting effective management of the estuary, including restoring and maintaining its water quality and natural resources.

In May 1989, the Project identified the need to develop full public education and an involvement plan for intensified public outreach to gain support for restoration of the estuary. The four major target audiences included children, SFEP constituent groups, the general public, and local, state and Federal decision makers.

Since children represent the future, the Estuary Project can help build a life-long ethic in the generations to follow by focusing on education programs and activities at public and private schools. To accomplish this task, The San Francisco Estuary Curriculum Project was formed in 1990. The SFBNWR is one of the environmental organizations that provided advisors to the Estuary Curriculum Committee. In 1992, the EEP staff helped with revisions of the third draft of a set of new curricula. The main focus of these revisions was to combine the K-8 and 9-12 guides into one guide: one section on introductory awareness activities and another section on action-oriented ones. A resource guide to the Bay area is included for additional information. The activity guides cover eight habitats connected to wetland studies; Open Water, Mudflats, Tidal Marsh, Seasonal Wetlands, Riparian, Upland, Vernal Pools and Salt Ponds. Each habitat is studied through an identified species. These activity guides can augment and expand current bay/marine science education taught in Bay-Delta schools.

The Environmental Education Program Coordinator also served on a committee to select a site for a new Grassland Resource Conservation District's Wetland Education Center. Organizations involved in the planning stages include surrounding school districts, California Department of Fish & Game, and U.S. Fish & Wildlife Service. The goal of the Wetland education Center is to provide an off-campus educational facility for students and teachers. A conference center, laboratory, field study stations and nature trails will provide materials and the setting. The Center will be located in a local setting where riparian wetlands, natural seasonal and permanent wetlands, native grasslands, and agricultural crops occur together. A site possessing this complex mosaic of habitat types will attract a variety of wildlife and provide a variety of educational opportunities that can be integrated into the California science framework. In 1992, a site was selected and now the committee is focusing on curriculum development.

The Natural Resources Education Consortium is a group of agencies that formed to meet a common objective: to teach children about conservation of natural resources and to teach science at the same time (In other words, the making the connections). The agencies involved are San Francisco Bay National Wildlife Refuge, The Santa Clara Valley Water District, Pacific Gas and Electric Company, the City of San Jose Office of Environmental Management, Environmental Volunteers, San Jose State University Department of Earth Sciences, Waste Management Incorporated, U.S.

Geological Survey, the Santa Clara County Office of Education, and the Youth Science Institute. Natural resource education involves the teaching of the fundamental principals of science. Whether it be about water and the water cycle, decomposition of food wastes and yard debris or geological formations in the valley, it is important that students not only understand how to conserve natural resources but, where they come from, how they are formed and what their function is in the environment. California's new science framework integrates the teaching of life, physical and earth sciences into the school curriculum. The consortium decided to use this integrated approach by providing curriculum, materials, and workshops for teachers to meet the requirements of the framework. The first workshop was in March, 1992 for K-8 grades. The focus was on Water: Making connections with our natural resource through the water cycle. One hundred fifty educators from Bay Area schools attended this all day workshop. A 1992 Conservation Calendar was designed to represent a band of characters called Hubcaps and Axles who live a conservation lifestyle. Each month has a conservation message and teachers will be provided with ideas for activities and resources for more information about each months theme. Due to lack of interest and time this consortium will not be active in 1993.

Environmental Education Pavilion - San Francisco Bay National Wildlife Refuge's new Environmental Education Pavilion was dedicated during a ceremony on February 29, 1992. The construction of this new environmental education classroom was possible with contributed money, supplies and labor. The Pavilion is a splendid example of government, industry, local businesses, civic organizations and private citizens working together as a productive team on an essential project. The finished pavilion quickly became an important facility for the refuge's education program.

The list of contributors and volunteers who participated on this project is a very long one. Catalyzed by a contribution from the Cargill Salt Company, building materials were purchased and work began in the spring of 1991. Pacific Gas and Electric Company (PG&E) dug the holes for a number of huge power poles to serve as upright building supports, and used its equipment to place them in the holes. The Right Away Redy Mix company of Alameda contributed 7.5 cubic yards of concrete for the holes, which the company delivered and poured for free.

The Fremont Rotary club built the floor of the new classroom, framed in the walls, and later donated the money to buy the building's roof trusses. The Citizens Committee to Complete the Refuge provided money for additional materials throughout the course of construction. Stairs and a wheelchair ramp were constructed by Refuge Volunteer Steve Herrick.

The walls were finished and a plywood roof was nailed on to the trusses by USFWS employees Steve Lewis, Steve Berendzen, Pat Koglin and Doug Roster. Power Engineering, Incorporated of Palo Alto donated a composition shingle roof which they installed. They also donated and attached tongue-in-groove siding to cover the outside of the entire building.

Volunteer Howard Collins installed all of the electrical wiring, and the power hookup was done for free by P.G. and E. Meanwhile, interior plywood sheathing and interior roofing was installed by Hank Lewis (former Newark Mayor), Niels Nielsen, Ken

Grimes, Bill Buttz, Jack Gonselves and Larry Lira. They were assisted by the volunteers from Power Engineering, who finished the outer siding and had some time left over to help on the inside roof.

Native plants were planted around the new Pavilion by volunteers of the Refuge's Native Plant Nursery.

The Refuge alone could never shoulder the cost of such a project. Only through the contributions of cash, materials and the time and talents of dozens of volunteers could such an idea become a reality. As a result of the dozens and dozens of volunteers who championed the project and paid for it, the Refuge has a \$60,000 environmental education classroom, built largely by volunteers, at very little cost to the government.



The Environmental Education Pavilion was open and operating throughout 1992. Here, a group of students on a field trip moves from the Pavilion to the Pumphouse during a rotation.

H.4. Interpretive Trails

The Refuge has two trails with interpretive wayside exhibits. These displays describe the habitat, the cultural history, the ecological dynamics and geology of the areas that visitors walk through. They are entertaining, easy to read, visible without being intrusive and serve as an important supplement to our interpretive effort.

The self-guided trails are especially important during hours when the Visitor Center is

closed. From 5pm to sunset, and before 10am, trail use is often heavy. Refuge volunteers patrol the trails talking with visitors and providing more information to people as needed. They also pick up trash and make of note the wildlife they see.

The Refuge's main interpretive trail, the Tidelands Trail, is registered as a National Recreation Trail in the National Trails System.



The Tidelands Trail attracts hikers of all ages.

H.5. Interpretive Routes

Nothing to report.

H.6. Interpretive Exhibits, Demonstrations and Special Events

During 1992, 138,006 visitors participated in interpretive activities at the Refuge. Almost 128,708 took advantage of our self-guided interpretive trail or visited the visitor center to watch films or videos and look at the educational displays. The remaining 9,298 participated in the numerous naturalist-conducted programs such as walks, van tours, talks, slide presentations, bicycle and canoe trips. Astronomy programs were held once a month throughout the year. Volunteers leading the astronomy programs provided telescopes and expertise for these popular events.

Every day brings a steady stream of inquisitive Refuge visitors past our Visitor Center reception desk. Our volunteers who daily staff the desk are knowledgeable and always willing to help out. We would not be able to present the variety of programs we do without them.

The Environmental Education Center began operating as a visitor center on weekends, beginning on September 12. This was made possible by joint funding from the Santa Clara Valley Nonpoint Source Pollution Control Program and the City of San Jose Office of Environmental Services. The funding covers the salary of a half-time interpretive specialist (GS-5), interpretive materials, cleaning and maintenance of the building on weekends, and the rental of 2 port-a-potties. Opening this site on weekends greatly improves access to the marshes, trails and interpretive facilities of the Refuge for residents of Santa Clara County.

A total of 1039 people visited the EEC on weekends from September through December. Three hundred five visitors attended interpretive programs, 104 participated in weekend seminars and events coordinated by the environmental education staff, and 175 were members of organized groups using the facility.

The natural history of the Refuge was well represented in our 1992 programs at both the Visitor Center and the Environmental Education Center with topics such as salt marsh ecology, insects, birds, seasonal wetlands, endangered species, edible plants, geology and mammals. Our volunteer staff was quite active during 1992 giving 95% of our weekend public tours and interpretive programs. A number of programs of global importance were also given by local experts. Topics such as Ocean Pollution, Air Quality and Rainforest Ecology were presented and well attended by the public. For complete descriptions of these programs, look in the calendar section of the *Tideline* newsletters included at the back of this narrative.

Our program audiences were as diverse as the program topics that we presented. Audubon chapters, day care centers, garden clubs, historical societies, scout troops, community groups, senior centers, teachers associations, college classes, and women's organizations, among many others, took advantage of the available programs. The greatest demand for naturalist-led activities, however, came from families who discovered the wildlife resources of the Refuge and the Bay area.

Among the most popular activities during 1992 were the tours of Drawbridge, an abandoned sportsperson's community in a salt marsh setting. The dilapidated town stands as a reminder of the consequences of human destruction of the native environment. This was the theme as 900 people visited the area during tours offered on Saturdays from May through October. Other weekday and weekend tours were arranged by special request for walking clubs, photography groups and other organized groups.

Many off-site events helped to increase public recognition of the Refuge and its programs. During 1992, volunteers staffed information booths at local festivals such as the Berkeley Bay Fair, the Bay Area Environmental Education Resource Fair, Sulphur Creek Wildlife Day, People, Pride and Progress in Newark, the Crab Cove Sea Fair and Wetlands Day and others. Throughout the year, staff members spoke to numerous civic, business, church and social groups, providing nearby communities a service while disseminating information about the Refuge and its resources. Career talks were frequently given to students at local high schools and intermediate schools.

The staff at the Environmental Education Center in Alviso also conducted short, interpretive programs for local companies and organizations; groups included the San Jose/Santa Clara Pollution Control Plant, Intel Corporation, IBM Corporation, and the Alviso Rotary.

On Saturday, January 12, 1992 at the Marin Civic Center in San Rafael the entire EEP staff and interns attended the popular Bay Area Environmental Education Resources Fair. The focus of the fair was to bring people closer to the resources and issues surrounding our natural world. It provided science and ecology workshops and exhibits for educators K-12. The staff handed out educational information, posters and the new central valley wetlands Habitat Fun Packs curriculum guides at the SFBNWR booth and attended several of the workshops.

On February 26, 1992 the Environmental Education Specialist Sandy Spakoff led bird activities for a fair featuring California wildlife and local habitats. The focus was on environmental education programs for K-6th grade students, parents, and teachers. The event was held at the Santa Clara Valley Audubon Society headquarters in Cupertino.

A Refuge Environmental Education Specialist and the Environmental Education Program interns participated in the Redwood Environmental Education Fair representing the Humboldt Bay National Wildlife Refuge which does not have an environmental education staff. The fair was held on May 29, 1992. One person worked at a booth giving out refuge information while two others led a presentation on wetlands that included an activity "Where have all the Wetlands Gone". Each presentation lasted for 45 minutes and was conducted for three fifth grade classes. The presentation met Humboldt Refuge's resource management objective that promotes understanding of the importance of wetlands and the need to preserve and restore wetlands.

In January the education staff at the Visitor Center in Fremont staffed display booths at two fairs. On January 10 we traveled to San Jose for a Girl Scout Fair. The theme of the fair was endangered species.

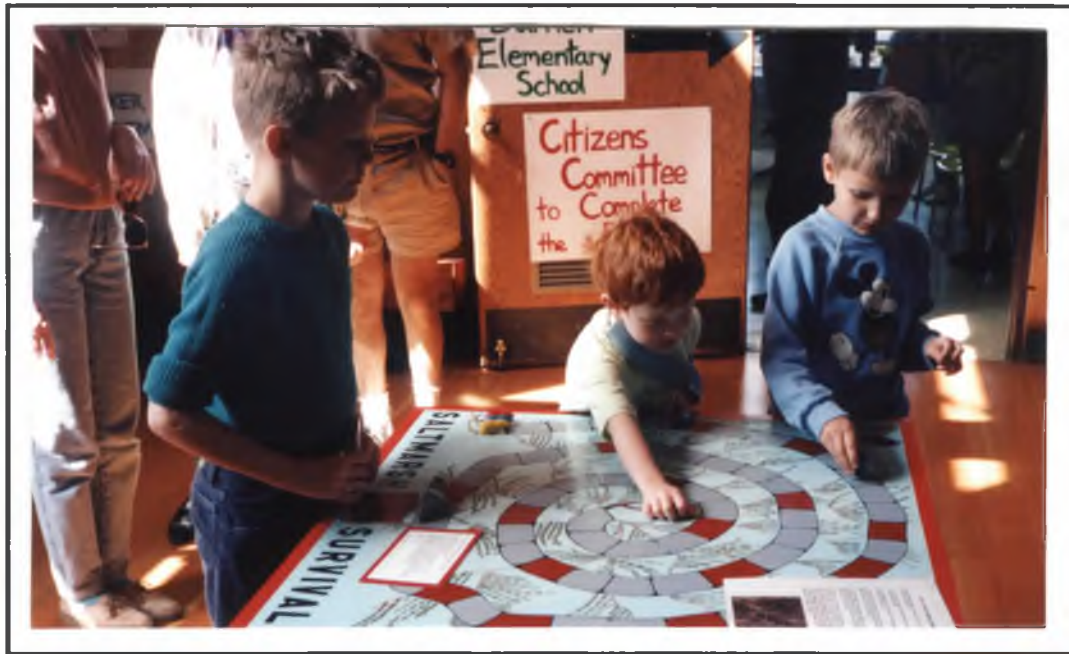
We also attended a resource fair for teachers in the Oakland School District. We used it to advertise our environmental education and interpretive programs as well as general information about the Refuge.

Special events were held at the Refuge during 1992. The following briefly describes these programs and events:

Endangered Species Day -- On Saturday, April 4th, the Refuge hosted this open house at the Environmental Education Center. There were a variety of activities and presentations focusing on the endangered species of California. Participants included: Hopper Mountain NWR, Condor Recovery Program; National Audubon, Adopt-an-Endangered Species; William Burnett Elementary School Students, The Salt Marsh Harvest Mouse; SFBNWR Biologist, Endangered Species of the Refuge; Harker Academy, Protecting Wildlife Habitat; San Francisco Zoo, Endangered

Animals and Their Habitats; State of California, Department of Fish and Game, The Endangered Species Check-off; Citizens Committee to Complete the Refuge, Expanding Endangered Habitats.

One of the goals of the Open House was to demonstrate cooperative efforts between various agencies and organizations and to present various ways in which people can become involved in protecting endangered species. The variety of participants allowed for people to see government (Federal, State, and City), non-profit organizations, and schools all working together for a single purpose. Approximately 200 visitors spent the day learning about endangered species and the importance of managing and preserving wildlife habitat.



Kids at the Open House playing the Salt Marsh Survival board game.

Earth Day/National Wildlife Week -- Again this year, a special event day was held to celebrate Earth Day and National Wildlife Week, two nationally recognized events. Almost 1000 people turned out. The day consisted of hour long programs in the Visitor Center auditorium on a variety of topics related to wildlife. Local wildlife groups put on these special programs. These groups also had information tables and hands-on activities going on throughout the day. Refuge volunteers helped with other information booths and activities. It was a busy day with lots to do for the young and not so young! The Endangered Species Poster Contest awards ceremony was held during this day. See Section H.7. for more information about the poster contest. A copy of the flyer advertising the 1992 Earth Day is included at the back of this narrative.

California Coast Clean-Up -- For the fifth year, the Refuge celebrated

COASTWEEKS by participating in the California Coast Clean-up Day. Refuge staff worked with other East Bay organizations (East Bay Regional Park District, Hayward Area Recreation District, Alameda County Public Works, Cities of Fremont and San Leandro and the East Bay Conservation Corps) to coordinate clean-up efforts in Alameda County. Many private business contributed to the Clean-up either financially or with equipment. The day could not be so successful without the cooperation of so many individuals and groups.

The Refuge organized Clean-ups sites at three different locations on the Refuge, the Dumbarton Fishing Pier, the Ravenswood Trail and the Coyote Creek Lagoon Trail. Refuge volunteers and staff and maintenance staff from Coyote Hills Regional Park were on hand to register volunteers, distribute bags, drive vehicles and do everything else needed to make the clean-up a success. Over 600 volunteers from local communities turned out for the four hour clean-up. Eleven tons of debris was collected from the three sites on the Refuge. Plastics, glass and aluminum were collected separately and recycled by the California Conservation Corps. The bags were provided by the California Coastal Commission, California Department of Transportation and the Refuge. Waste Management, Inc. provided dumptrucks and drivers. The East Bay Regional Park District sponsored a picnic after the Clean-up and distributed free t-shirts. A copy of the flyer advertising the Clean-up is included at the back of this narrative.

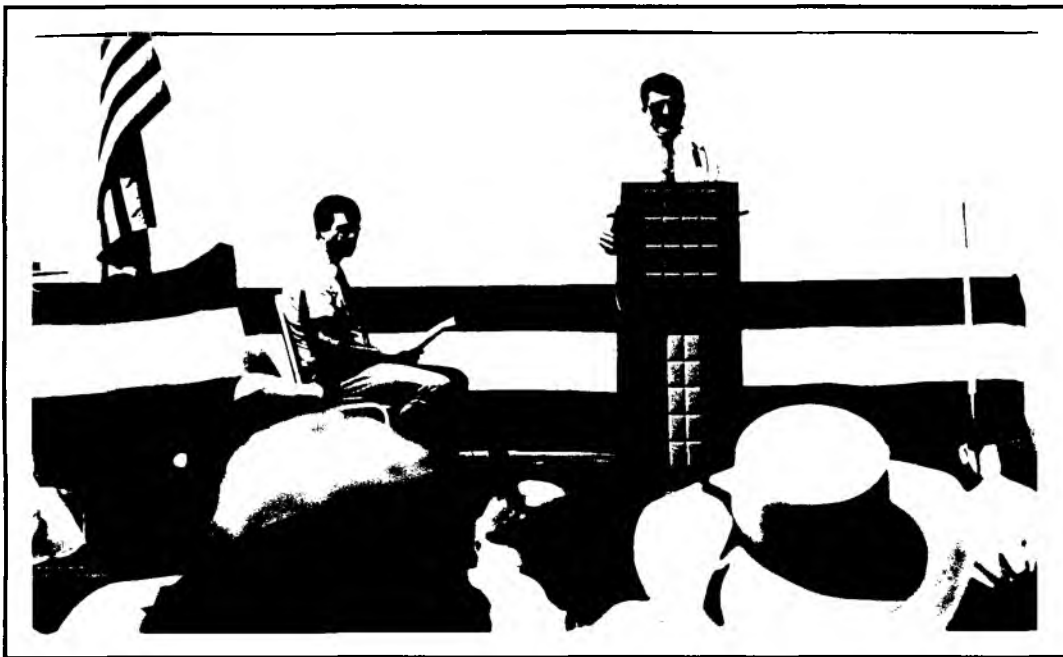
Kid's Day -- Our annual Kid's Day was held in September again this year. Over 400 kids and their parents were in attendance throughout the day. Programs included a bird banding demonstration, Native American storytelling, and presentations on reptiles, local wildlife and fish and whales. Kids were also able to participate in activities such as creating insects, marsh art, face painting, owl pellet dissection, brine shrimp observation and a scavenger hunt. Refuge volunteers and local wildlife groups helped with the activities and programs. A copy of the flyer advertising our 1992 Kid's Day is included at the back of this narrative.

Halloween Open House -- Our annual Halloween Open House was held in late October at the Refuge Visitor Center. Over 650 people enjoyed video and slide presentations, Drawbridge tours, face painting, pumpkin decorating and many other hands-on activities. A copy of the flyer advertising our 1992 Halloween Open House is included at the back of this narrative.

Fishing Day for the Disabled -- In conjunction with 1992 National Fishing Week, a fishing day was held with a target audience of people who fish and are disabled. An interpreter from a neighboring park was asked to put on the interpretive programs and the local fishing club was on hand to help with the programs and pier fishing. The day long event was full of things to do. All regular publicity for the event went out in addition to special advertising to local disabled groups, homes, etc. There were exactly 10 people who showed up for the day; one was disabled. It was decided not to target such a limited audience again for this type of event. A copy of the flyer used for this day is included at the back of this narrative.

Seasonal wetlands dedication ceremony -- Following the purchase of a new parcel of land from Sanwa Bank, on April 25 we dedicated the new Warm Springs Seasonal

Wetlands area. The event consisted of a series of brief statements by local, state and national dignitaries, followed by a transfer of the deed to the property and the symbolic erection of a sign which will identify the 225-acre parcel as an integral component of the refuge. Representatives of the many organizations that assisted with the acquisition, as well as prominent citizens, members of the press and Assistant Regional Director for Refuges and Wildlife, John Doebel, were present. Also attending were Congressman Pete Stark, State Senator William Lockyer, State Assemblywoman Delaine Eastin, and Sanwa Bank's Vice President Tom Cowan. Speeches were made, refreshments were served, dignitaries were photographed and congratulations were extended and heartily returned by everyone.



Assistant Regional Director John Doebel made a speech while Master of Ceremonies Rick Coleman listened.



Dignitaries waited their turns at the rostrum. Left to right: Gus Morrison, former Mayor of Fremont; Florence LaRiviere, Citizens' Committee to Complete the Refuge; State Senator William Lockyer; Congressman Pete Stark; Assemblywoman Delaine Eastin; Mr. Doebel; Peter Grinnel, Executive Director of California State Coastal Conservancy.



Following the speeches, Congressman Stark helped plant the sign, while Assistant Regional Director Doebel and other V.I.P.s looked on.



Following the ceremony, a euphoric atmosphere prevailed. Left to right: Gus Morrison, Congressman Stark, Sanwa Bank Vice President Tom Cowan, Peter Grinnel, Assemblywoman Eastin, San Jose Mercury News reporter, other visitors in background.

H.7. Other Interpretive Programs

In spite of all of the efforts that we made during the year to contact the public, we know that there are many thousands (millions) of people out there who don't know about us or whose interests do not include endangered species, wetland preservation, migration, waterfowl populations or anything else along those lines. Reaching *these* people is one of the most challenging tasks with which the education and outreach staff is confronted. People first need to know that the Refuge exists, then the next step in reaching them is getting them out to the Refuge where they can see with their own eyes what sort of job we are doing and what needs to be done in order to protect wildlife habitat.

In order to get the word out about us and to ultimately get people to the Refuge, the education and outreach staff participated in some non-traditional education and outreach efforts. The following briefly describes what projects were undertaken in 1992.

Tideline - Foremost among our non-traditional interpretation efforts was the production of a quarterly newsletter, *Tideline*. A copy of each issue of the newsletter is included at the back of this narrative. In 1992, *Tideline* was distributed quarterly to 28,000 Bay Area households, school, businesses, churches, hospitals and libraries. It was considered to be our very best means of communicating our program schedules, announcements, news stories, advertisements and editorial comments. In fact, many of our programs were filled to capacity by *Tideline* recipients. The *Tideline* was used as a text at a training course for urban managers at the National Park Service's Training Center at Harper's Ferry in West Virginia. It was also used as a supplement to formal text books in many high school biology classes. We repeatedly get requests from biology teachers for subscriptions for that purpose.

Tideline, which is financed by the San Francisco Bay Wildlife Society, was printed on recycled paper for the first time in 1992. Our mailing list was managed by Volunteer Howard Collins, who coordinated additions, deletions and changes to the list. Volunteers also helped with the labeling of the issues before mailing. Without volunteer assistance, *Tideline* would not be possible.

Native Plant Symposium/Sale/Nursery - San Francisco Bay Wildlife Society continued to manage a Native Plant Nursery that grows plants that to enhance native habitat on this and other Refuges. It was also established to serve as a vehicle for reaching out and contacting non Refuge visitors and thus bring them to the Refuge. Several thousand dollars in contributions were solicited and the Nursery flourished.

The California Conservation Corps supplied much of the plant material . More native plants were contributed by commercial nurseries. The chief grower for a Bay Area chain of 8 nurseries served through the year as the Director of the nursery. Volunteers performed the labor, and we held two Native Plant Days with guest speakers, workshops, demonstrations, and the sale of 35 species of California native plants.

The events attracted several hundred visitors who came to the refuge to learn about native plant horticulture, and went back home at the end of the day knowing about the National Wildlife Refuge System, the importance of wetlands, and the value of planting with native species. A Copies of the flyers advertising these events is included at the back of this narrative.

During the year, the Native Plant Nursery grew 2,000 coyote bushes (*Baccharus pilularis consanguinea*) which a troop of boy scouts and their parents planted along an eroding levee. In addition, we grew 1600 native bunch grass plants which were planted in two locations by another troop of scouts. Refuge volunteers landscaped the new Environmental Education Pavilion with native plants from the Nursery.

Clearly, the Native Plant Nursery will become an important part of both San Francisco Bay Wildlife Society and of an urban refuge in constant need of botanical rehabilitation.



Volunteer Jack Runyan tends the plants in the Native Plant Nursery

Wildlife and Nature Arts and Crafts Sale -- The annual arts and crafts sale sponsored by the San Francisco Bay Wildlife Society was held in the Refuge parking lot in November. A complete description of this event may be found later in this narrative under section H.18. - Cooperating Associations.

Endangered Species Poster Contest -- Another non-traditional interpretive effort was the Refuge's tenth annual Spring Poster Contest, which attracted 900 entries by artists in grades K-6 from three local school districts. The contest theme for 1992 was "Endangered Species."

First place winners in each grade won free passes for themselves and their parents to the Monterey Bay Aquarium. Second place winners and their parents won a trip to the San Francisco Zoo. Third place winners each won a pass for three to California Academy of Sciences in San Francisco's Golden Gate Park. All winners and honorable mentions received ribbons. A copy of the flyer advertising the poster contest is included in the back of this narrative.

We feel that a poster contest is a good way to reach members of the public who might otherwise never make it to the Refuge. These students spent hours (days) preparing posters which illustrated endangered species. In the process, each artist may have convinced him/herself that a conservation endeavor is a worthwhile pursuit. This is difficult to measure, but, considering the persuasive, convincing nature of most of the posters, we feel that many advocates of our conservation ethic were either created or reinforced.

In addition, the awareness level of many South Bay students (as well as teacher and parents!) was heightened and *many* visitors checking in at the Visitor Center desk stated that their curiosity had been piqued by the contest, and that they were here to see who we were and what we were all about.



Hundreds of Endangered Species posters were reviewed by our volunteer judges.

Artist's Reception -- During 1992, the Refuge held receptions for three local artists who were exhibiting their original wildlife artwork in the Visitor Center auditorium. The receptions were advertised in the Tideline and special invitations were made and sent to the artist's mailing lists. San Francisco Bay Wildlife Society provided refreshments. The receptions were well attended and attracted many people who were first time visitors to the Refuge. The invitations and flyers advertising these events are included in the back of this narrative.

H9. Fishing

Public use of the access along the Dumbarton Point Trail (south end of the fishing pier) and the Shoreline Trail (north of the fishing pier) continued to increase. Use of the Dumbarton and Ravenswood Fishing Pier stayed about the same as last year. Approximately 25,000 anglers used the piers and the surrounding fishing areas in 1992.

Fishing from or near the piers has netted a variety of fish: leopard shark, sand shark,

bat ray, shiner surf perch, kingfish, bullhead, and the elusive striped bass, white sturgeon and salmon.

Volunteers patrolled the fishing piers and shoreline trails on foot and by bicycle. Most patrolling was conducted during the weekends. Volunteers would talk with the people fishing and give out information as needed.

H.10. Trapping

Nothing to report.

H.11. Wildlife Observation

The opportunity to view wildlife in its natural habitat attracts many of our visitors. In close proximity to the Visitor Center is a variety of habitats such as salt marsh, sloughs, extensive mud flats, open water and upland coastal chaparral, grassland and trees. This range of habitats provides an ideal area for visitors to explore, on their own or with our naturalists, when seeking local wildlife.

Some visitors participated in van tours or canoe trips to Mallard Slough and Triangle Marsh, where marsh-nesting and feeding birds were easily seen. Most visitors walked or biked the many miles of Refuge trails on their own viewing migrating and wintering shorebirds and waterfowl during the winter months, resident nesting birds and young birds during the spring and summer months. Bird watchers revel in these opportunities. In addition, many nature study groups led field trips to our Refuge, and the Audubon Society once again conducted its annual Christmas bird count here.

One of the most popular sites for local bird watchers was the restored tidal area, Avocet Marsh, where great numbers of shorebirds and migrating waterfowl gather to feed. There is also a peregrine falcon commonly sighted here.

In July, the Refuge participated in the 16th Annual 4th of July Butterfly Count conducted nationally by the Xerces Society. The event was announced in *Tideline* and drew a number of seasoned, professional lepidopterists as well as first-time amateurs. The counters spent the day searching out butterflies near the Visitor Center and EEC, as well as a nearby riparian corridor, and amassed a total of 26 species. It was great fun for everyone and will be repeated in 1993.

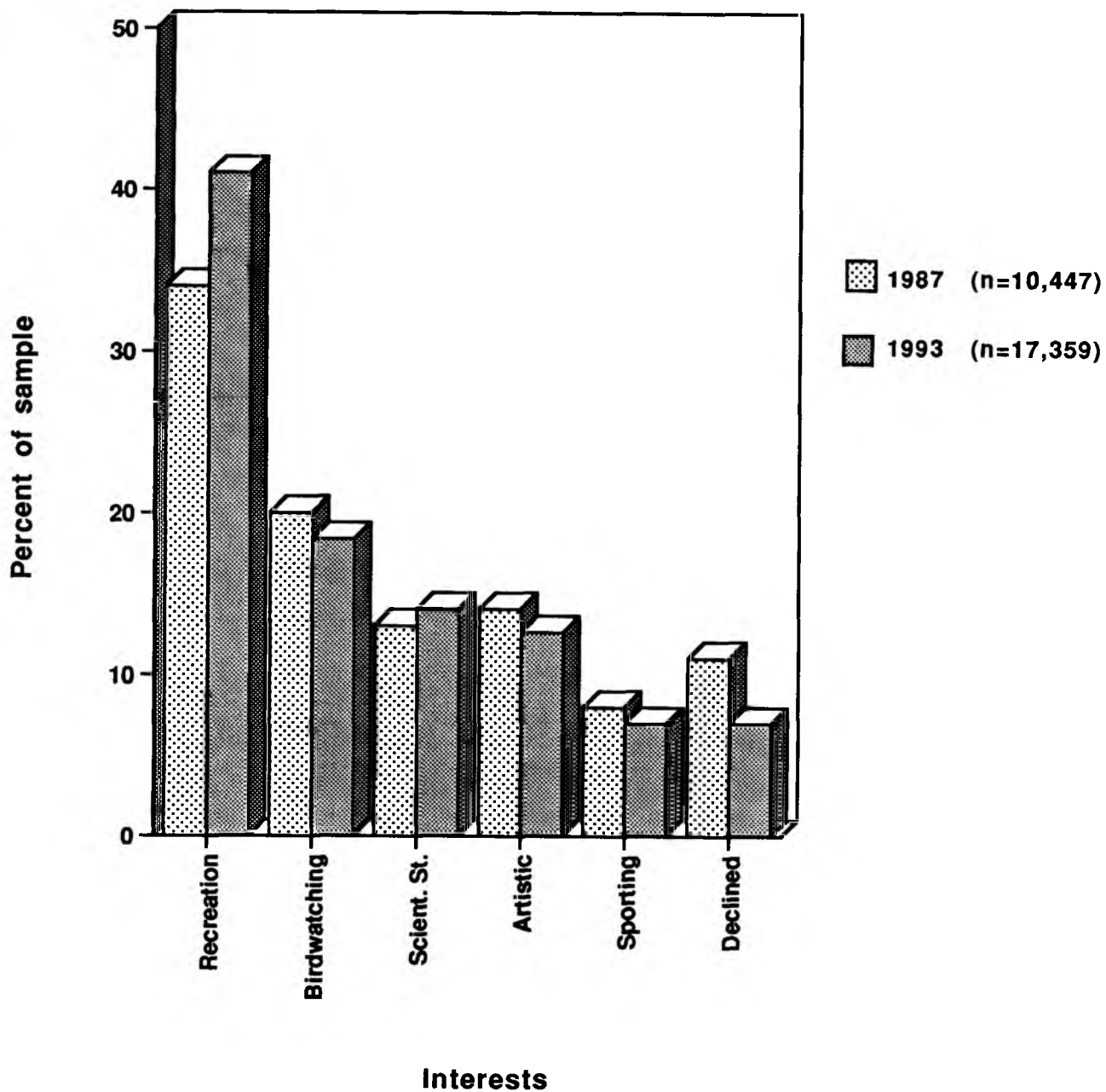
H.12. Other Wildlife Oriented Recreation

Nothing to report.

H.13. Camping

Nothing to report.

Visitor Interests at San Francisco Bay National Wildlife Refuge



Values are from voluntary subscriptions to Tideline Newsletter at San Francisco Bay National Wildlife Refuge Visitor Center

H14. Picnicking

Nothing to report.

H.15. Off-Road Vehicles

Nothing to report.

H.16. Other Non-Wildlife Oriented Recreation

Nothing to report.

H18. Cooperating Associations

San Francisco Bay Wildlife Society completed its fifth full year of operation in 1992. This non-profit corporation helps sponsor and finance education and outreach programs at the Refuge. In order to do this, the Society needs money and money was generated in a variety of ways throughout the year. Wholesale and retail sales of books, pamphlets and theme-related items brought in \$38,280. Membership dues, donations and interest amounted to \$10,913. Our art show, native plant sale and seminars grossed \$6,350. Total receipts for fiscal year 1992 were \$96,683. This figure reflects total income, including grants, loans, sales receipts at Tulelake NWR and Sacramento NWR and all other sources of income. We anticipate that we will take in over \$100,000 in 1993.

We had to pay many bills with this money such as, purchase of the books we sold (\$25,902) and sales tax (\$3,111). Even after expenses, we had enough net profit to print four issues of our newsletter, *Tideline*, (\$15,736), fund a petty cash fund for the environmental education and outreach program (\$1,916), buy recycled paper for office use (\$487), purchase a number of capital items such as microscopes, computers and a laser printer (\$4,607) and support the public use program with a great many miscellaneous purchases such as postage stamps, administrative supplies, film processing, etc. (\$6,360).

We continued operating sales outlets at Klamath Basin Refuges and Sacramento Refuge during 1992. Thanks to the efforts of the staff and volunteers at both of these Refuge, sales increased at both places again this year. Klamath Refuge had gross sales of \$18,197 and Sacramento Refuge, in its second full year of operation, grossed \$4,571.

Avocet Festival -- Our twelfth annual Wildlife and Nature Arts and Crafts Show, combined with an expanded environmental fair, given a new name, and held in November instead of December, was a grand success. We held it in the Refuge parking lot, in a rented, 40'X130' carnival tent. Several thousand people came to the Festival and purchased wildlife paintings, sculptures, pottery, stained glass, jewelry

and photographs.

We held an Environmental Fair as part of the Avocet Festival, right alongside the tent. Twenty-one Bay Area organizations staffed booths and presented interpretive programs for the fair goers. The environmental fair was organized by Volunteer Carolyn Hopper.

An important part of the Avocet Festival was a raffle, organized by Volunteer Amy Izzo-Olander. She solicited gifts from 21 companies; the grand prize was a San Francisco getaway, including a sunset cruise for two from Rendezvous Charters and an evening at The Mansion Hotel. Amy encouraged the other volunteers to sell raffle tickets for these prizes by inventing the "I Sold the Most" raffle contest, with a \$50 gift certificate to Whales and Tales Nature Store as the prize. The raffle netted almost \$1,600.

A food booth was organized by volunteer Sue TenEyck, who sold \$1,495 worth of hot dogs, hamburgers, chips, coffee and cokes. In addition, the Refuge bookstore sold \$1,567 worth of books.

However, expenses were also very high. Tent rental alone was \$2,500 and tables and chairs, power cords, etc. ran another \$1,000. Food purchases, mailing costs, flyer printing and so forth brought the total \$5,520. Fortunately, receipts totaled over \$8,200, so we netted \$2,700. The money went into San Francisco Bay Wildlife Society's general account, where it will help fund the Public Use program in 1993.

Total artist sales were \$17,530, about 12% less than planned (most artists reported that their overall sales for the year at other shows were also lower due to the current recession). Net revenue was \$2,710, \$1700 above our projection. This relative improvement in the profit was based on strict cost controls and higher than anticipated income from the raffle (\$1,613), food sales (\$1,495) and artists' application fees (\$2,723).

In 1993, we will hold another Avocet Festival, probably in the Refuge's new maintenance area.

Explore the Wild! Seminar Program -- In 1992, the Society again sponsored an adult seminar program called "Explore the Wild!". The courses offered were:

Wildlife Art Workshop: Drawing Birds -- March 28

Rare, Endangered and Common Wildflowers of Santa Clara County -- April 11

Golden Gate Whale Watching Sunset Cruise -- April 25

Natural History of Año Nuevo -- May 2

Tidepooling at Fitzgerald Marine Preserve -- May 9

Coastal Geology of Northern California -- May 23, 24, 25

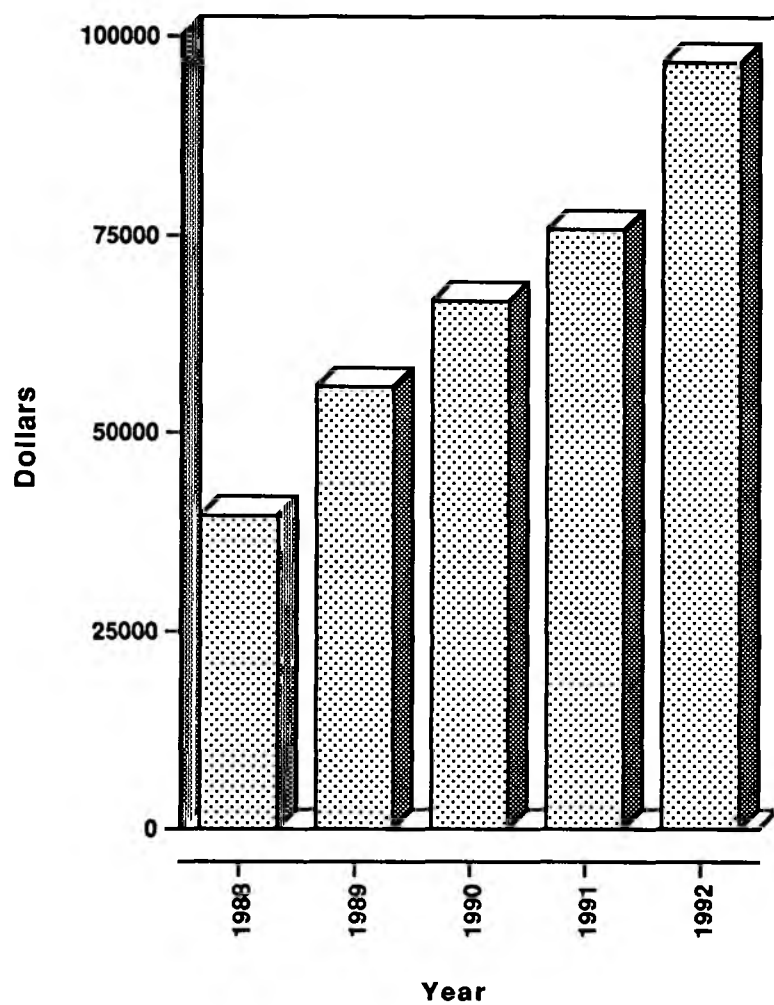
Botanical Art Seminar -- September 12

Joseph Cornell's Sharing Nature Seminar -- October 10

The number of participants ranged from 10 to 35 per seminar. One of the seminars, Coastal Geology of Northern California, was led by a Refuge volunteer, Mansurali Nurmuhammad. The series netted \$1,574 for the Society, which will use the money to help fund Public Use programs in 1993.

San Francisco Bay Wildlife Society plays a very significant role in the operation of the Refuge's Education and Outreach efforts. Like most programs at the Refuge, the Society could not exist without the many tireless hours contributed by volunteers. Volunteer Jean Noll completed her second year as the Society bookkeeper and our records have never been better organized. Stan Brown handles the entire Society membership operation. Howard Collins maintains the mailing list data base of 17,000 names for the *Tideline* newsletter. Sid Hollander again served as director of the Art Show coordinating all aspects of that fund-raiser. Volunteers help with all Society events like the art show and native plant sale; they sell the books in the bookstore and get people to become members of the Society. Nine people from the community serve on the Society's Board of Directors. The Directors provide expertise and advise about Society operations and approve Society expenditures and fund raising efforts. Thanks to all these people who helped make 1992 another successful year for San Francisco Bay Wildlife Society!

***San Francisco Bay Wildlife Society
Gross Revenue***





San Francisco Bay National Wildlife Refuge Public Use Staff
Left to right: John Steiner, Kathy Przybylski, Fran McTamaney, Sheila McCartan (transferred to Regional Office November, 1992) and Paul Wong.
Not pictured: Rich Haire (transferred from Regional Office November, 1992) and Sandy Spakoff (pictured on page7).